

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 39 - 06347 W County KANAWHA District BIG SANDY
Quad CLENDENIN - 299 Pad Name _____ Field/Pool Name _____
Farm name DANIEL & LAURA BODKINS Well Number OSBORNE 1A
Operator (as registered with the OOG) RAVEN RIDGE ENERGY, LLC
Address 3230 PENNSYLVANIA AVENUE City CHARLESTON State WV Zip 25302

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing N/A Easting N/A
Landing Point of Curve Northing N/A Easting N/A
Bottom Hole Northing N/A Easting N/A

Elevation (ft) 980' GL Type of Well ☒ New ☐ Existing Type of Report ☐ Interim ☒ Final
Permit Type ☐ Deviated ☐ Horizontal ☐ Horizontal 6A ☒ Vertical Depth Type ☐ Deep ☒ Shallow
Type of Operation ☐ Convert ☐ Deepen ☒ Drill ☐ Plug Back ☐ Redrilling ☐ Rework ☒ Stimulate
Well Type ☐ Brine Disposal ☐ CBM ☒ Gas ☒ Oil ☐ Secondary Recovery ☐ Solution Mining ☐ Storage ☐ Other _____
Type of Completion ☒ Single ☐ Multiple Fluids Produced ☒ Brine ☒ Gas ☐ NGL ☒ Oil ☐ Other _____
Drilled with ☐ Cable ☒ Rotary

Drilling Media Surface hole ☒ Air ☐ Mud ☐ Fresh Water Intermediate hole ☐ Air ☒ Mud ☐ Fresh Water ☐ Brine
Production hole ☒ Air ☐ Mud ☐ Fresh Water ☐ Brine
Mud Type(s) and Additive(s)
SOAP

Date permit issued 12/28/2012 Date drilling commenced 3/14/2013 Date drilling ceased 3/21/2013
Date completion activities began 12/5/2013 Date completion activities ceased 12/30/2013
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 200' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1,200' - 1,700' Void(s) encountered (Y/N) depths N
Coal depth(s) ft NONE OF RECORD Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) NO

Reviewed by:

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API 47- 39 - 06347 Farm name DANIEL & LAURA BODKINS Well number OSBORNE 1A

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	14 1/4"	13 3/8"	30'	NEW	J55 - 42 LBS		YES - CEMENTED BY RIG
Surface	12 1/4"	9 5/8"	380'	NEW	LS - 17 LBS		YES
Coal							
Intermediate 1	8 3/4"	7"	1836'	NEW	J55 - 23LBS	348'	YES
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2156'	NEW	J55 - 10.5LBS		YES
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class I	10 - Cemented by Hand				Ground Level	8
Surface	Class I	120	15.6	1.18	141.6	Ground Level	8
Coal							
Intermediate 1	Class I	330	15.6	1.18	389.4	Ground Level	8
Intermediate 2							
Intermediate 3							
Production	Class I	150	14.2	1.29	193.5	500'	8
Tubing							

Drillers TD (ft) 2274' Loggers TD (ft) 2272'
Deepest formation penetrated WEIR Plug back to (ft) _____
Plug back procedure _____

Kick off depth (ft) N/A

Check all wireline logs run ☐ caliper ☐ density ☐ deviated/directional ☐ induction
☐ neutron ☐ resistivity ☐ gamma ray ☐ temperature ☐ sonic

Well cored ☐ Yes ☒ No ☐ Conventional ☐ Sidewall Were cuttings collected ☐ Yes ☒ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ☒ No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ☒ No DETAILS _____

WERE TRACERS USED ☐ Yes ☒ No TYPE OF TRACER(S) USED _____

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Farm name **DANIEL & LAURA BODKINS**

Well number **OSBORNE 1A**

PERFORATION RECORD

[illegible]

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

[illegible]

Please insert additional pages as applicable.

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Farm name DANIEL & LAURA BODKINS

Well number OSBORNE 1A

PRODUCING FORMATION(S)

DEPTHS

WEIR 1950 ~~1976~~ - 2066' TVD _____ MD _____

Please insert additional pages as applicable.

GAS TEST ☒ Build up ☐ Drawdown ☐ Open Flow

OIL TEST ☐ Flow ☒ Pump

SHUT-IN PRESSURE Surface 50 psi Bottom Hole _____ psi DURATION OF TEST 12 hrs

OPEN FLOW Gas 2 mcfpd Oil 1/2 bpd NGL _____ bpd Water _____ bpd
GAS MEASURED BY ☒ Estimated ☐ Orifice ☐ Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
SAND/SHALE	0	1400'	0		
UPPER SALT SAND	1400'	1480'			
SHALE	1480'	1530'			
LOWER SALT SAND	1530'	1648'			
SHALE	1648'	1680'			
LITTLE LIME	1680'	1740'			
BIG LIME	1740'	1834'			
SAND/SHALE	1834'	1950'			
WEIR	1950'	2030'			
SAND/SHALE	2030'	2274'			

Please insert additional pages as applicable.

Drilling Contractor R & R Well Service

Address Ambler Ridge City Walton State WV Zip 25286

Logging Company Nabors Completion & Production

Address 82 Elkins Road City Buckhannon State WV Zip 26201

Cementing Company Universal Well Services

Address 5 Hall Run Road City Buckhannon State WV Zip 26201

Stimulating Company Producers Service Corporation

Address 109 Graham Street City Zanesville State OH Zip 43701

Please insert additional pages as applicable.

Completed by Danielle N. Boggs

Telephone 304-344-9291

Signature Danielle N. Boggs

Title Operations Manager

Date 2/25/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information

Attach copy of FRACFOCUS Registry

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 39 - 06348 W County KANAWHA District BIG SANDY
Quad CLENDENIN - 299 Pad Name _____ Field/Pool Name _____
Farm name DANIEL & LAURA BODKINS Well Number OSBORNE 2A
Operator (as registered with the OOG) RAVEN RIDGE ENERGY, LLC
Address 3230 PENNSYLVANIA AVENUE City CHARLESTON State WV Zip 25302

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing N/A Easting N/A
Landing Point of Curve Northing N/A Easting N/A
Bottom Hole Northing N/A Easting N/A

Elevation (ft) 846' GL Type of Well ☒ New ☐ Existing Type of Report ☐ Interim ☒ Final
Permit Type ☐ Deviated ☐ Horizontal ☐ Horizontal 6A ☒ Vertical Depth Type ☐ Deep ☒ Shallow
Type of Operation ☐ Convert ☐ Deepen ☒ Drill ☐ Plug Back ☐ Redrilling ☐ Rework ☒ Stimulate
Well Type ☐ Brine Disposal ☐ CBM ☒ Gas ☒ Oil ☐ Secondary Recovery ☐ Solution Mining ☐ Storage ☐ Other _____
Type of Completion ☐ Single ☒ Multiple Fluids Produced ☒ Brine ☒ Gas ☐ NGL ☒ Oil ☐ Other _____
Drilled with ☐ Cable ☒ Rotary

Drilling Media Surface hole ☒ Air ☐ Mud ☐ Fresh Water Intermediate hole ☐ Air ☒ Mud ☐ Fresh Water ☐ Brine
Production hole ☒ Air ☐ Mud ☐ Fresh Water ☐ Brine
Mud Type(s) and Additive(s)
SOAP

Date permit issued 12/28/2012 Date drilling commenced 3/25/2013 Date drilling ceased 3/30/2013
Date completion activities began 12/5/2013 Date completion activities ceased 12/30/2013
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 150' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1,100 - 1,600 Void(s) encountered (Y/N) depths N
Coal depth(s) ft NONE OF RECORD Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) NO

Reviewed by:

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API 47- 39 - 06348 Farm name DANIEL & LAURA BODKINS Well number OSBORNE 2A

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	14 1/4"	13 3/8"	30'	NEW	J55 - 42LBS		YES - CEMENTED BY RIG
Surface	12 1/4"	9 5/8"	378'	NEW	LS - 17LBS	80'	YES
Coal							
Intermediate 1	8 3/4"	7"	1654'	NEW	J55 - 23LBS		YES
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	1988'	NEW	J55 - 10.5LBS		YES
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class I	10 - Cemented by Hand				Ground Level	8
Surface	Class I	150	15.6	1.18	31.6	Ground Level	8
Coal							
Intermediate 1	Class I	240	15.6	1.18	50.4	Ground Level	8
Intermediate 2							
Intermediate 3							
Production	Class I	150	14.2	1.29	34.5	Ground Level	8
Tubing							

Drillers TD (ft) ²⁰¹⁷ _____ Loggers TD (ft) ²⁰¹² _____
Deepest formation penetrated WEIR Plug back to (ft) _____
Plug back procedure _____

Kick off depth (ft) _____

Check all wireline logs run ☐ caliper ☐ density ☐ deviated/directional ☐ induction
☐ neutron ☐ resistivity ☐ gamma ray ☐ temperature ☐ sonic

Well cored ☐ Yes ☒ No ☐ Conventional ☐ Sidewall Were cuttings collected ☐ Yes ☒ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ☒ No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ☒ No DETAILS _____

WERE TRACERS USED ☐ Yes ☒ No TYPE OF TRACER(S) USED _____

API 47- 39 - 06348

Farm name **DANIEL & LAURA BODKINS** Well number **OSBORNE 2A**

PERFORATION RECORD

[illegible]

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

[illegible]

Please insert additional pages as applicable.

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Farm name DANIEL & LAURA BODKINS Well number OSBORNE 2A

PRODUCING FORMATION(S)

DEPTHS

WEIR	1816' - 1880'	TVD	MD
WEIR	1896' - 1946'		

Please insert additional pages as applicable.

GAS TEST ☒ Build up ☐ Drawdown ☐ Open Flow OIL TEST ☐ Flow ☒ Pump

SHUT-IN PRESSURE Surface 50 psi Bottom Hole _____ psi DURATION OF TEST 12 hrs

OPEN FLOW Gas 2 mcfpd Oil 1 bpd NGL _____ bpd Water 5 bpd GAS MEASURED BY ☒ Estimated ☐ Orifice ☐ Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
SAND/SHALE	0	1270'	0		
UPPER SALT SANDS	1270'	1350'			
SHALE	1350'	1400'			
LOWER SALT SANDS	1400'	1520'			
SAND/SHALE	1520'	1566'			
LITTLE LIME	1566'	1606'			
BIG LIME	1606'	1704'			
INJUN	1704'	1714'			
SAND/SHALE	1714'	1800'			
WEIR	1800'	1948'			
SAND/SHALE	1948'	2017'			

Please insert additional pages as applicable.

Drilling Contractor Petty Oilfield Services

Address 7752 Lynne Avenue City Hamlin State WV Zip 25523

Logging Company Weatherford (Cement Bond) - Nabors (Open Hole)

Address 286 Weatherford Blvd / 82 Elkins Road City Buckhannon State WV Zip 26201

Cementing Company Allied Oil & Gas Services/Universal Well Services

Address 100 Hope Street City Clarksburg State WV Zip 26301

Stimulating Company Producers Service Corporation

Address 109 Graham Street City Zanesville State OH Zip 4370

Please insert additional pages as applicable.

Completed by Danielle N. Boggs Telephone 304-344-9291

Signature Danielle N. Boggs Title Operations Manager Date 2/25/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47-39-06349 W County KANAWHA District BIG SANDY
Quad CLENDENIN Pad Name _____ Field/Pool Name _____
Farm name DANIEL & LAURA BODKINS Well Number CRUM 1A
Operator (as registered with the OOG) RAVEN RIDGE ENERGY, LLC
Address 3230 PENNSYLVANIA AVENUE City CHARLESTON State WV Zip 25302

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing N/A Easting N/A
Landing Point of Curve Northing N/A Easting N/A
Bottom Hole Northing N/A Easting N/A

Elevation (ft) 1089' GL Type of Well ☒ New ☐ Existing Type of Report ☒ Interim ☒ Final
Permit Type ☐ Deviated ☐ Horizontal ☐ Horizontal 6A ☒ Vertical Depth Type ☐ Deep ☒ Shallow
Type of Operation ☐ Convert ☐ Deepen ☒ Drill ☐ Plug Back ☐ Redrilling ☐ Rework ☒ Stimulate
Well Type ☐ Brine Disposal ☐ CBM ☒ Gas ☒ Oil ☐ Secondary Recovery ☐ Solution Mining ☐ Storage ☐ Other _____
Type of Completion ☒ Single ☐ Multiple Fluids Produced ☒ Brine ☒ Gas ☒ NGL ☒ Oil ☐ Other _____
Drilled with ☐ Cable ☒ Rotary

Drilling Media Surface hole ☒ Air ☐ Mud ☐ Fresh Water Intermediate hole ☐ Air ☒ Mud ☐ Fresh Water ☐ Brine
Production hole ☒ Air ☐ Mud ☐ Fresh Water ☐ Brine
Mud Type(s) and Additive(s)
Soap

Date permit issued 12/27/2012 Date drilling commenced 2/18/2013 Date drilling ceased 2/25/2013
Date completion activities began 5/25/2014 Date completion activities ceased 6/10/2014
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 200' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1,300' - 1,800' Void(s) encountered (Y/N) depths N
Coal depth(s) ft NONE OF RECORD Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

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API 47- 39 - 06349 Farm name DANIEL & LAURA BODKINS Well number CRUM 1A

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	14 1/4"	13 3/8"	30'	NEW	J55 - 42LBS		YES - CEMENTED BY RIG
Surface	12 1/4"	9 5/8"	374'	NEW	LS - 17LBS		YES
Coal							
Intermediate 1	8 3/4"	7"	1867'	NEW	J55 - 23LBS		YES
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2187'	NEW	J55 - 10.5 LBS		YES
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS I	10 - Cemented by Hand				GROUND LEVEL	8
Surface	CLASS I	120	15.6	1.18	118.8	GROUND LEVEL	8
Coal							
Intermediate 1	CLASS I	336	15.6	1.18	396.5	GROUND LEVEL	8
Intermediate 2							
Intermediate 3							
Production	CLASS I	130	15.6	1.18	153.4	1530'	8
Tubing							

Drillers TD (ft) 2544' Loggers TD (ft) 2560'
Deepest formation penetrated WEIR Plug back to (ft) _____
Plug back procedure _____

Kick off depth (ft) N/A

Check all wireline logs run ☒ caliper ☒ density ☐ deviated/directional ☒ induction
☒ neutron ☒ resistivity ☒ gamma ray ☒ temperature ☒ sonic

Well cored ☐ Yes ☒ No Conventional Sidewall Were cuttings collected ☐ Yes ☒ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ☒ No DETAILS This well was originally completed as a shot hole. We later ran back in and set 4 1/2" and cemented to 1530'

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ☒ No DETAILS _____

WERE TRACERS USED ☐ Yes ☒ No TYPE OF TRACER(S) USED _____

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API 47- 39 - 06349

Farm name DANIEL & LAURA BODKINS

Well number CRUM 1A

PRODUCING FORMATION(S)

WEIR

DEPTHS

2130 - 2196
2460 - 2180

TVD

MD

Please insert additional pages as applicable.

GAS TEST ☒ Build up ☐ Drawdown ☐ Open Flow

OIL TEST ☐ Flow ☐ Pump

SHUT-IN PRESSURE Surface 100 psi Bottom Hole _____ psi DURATION OF TEST 12 hrs

OPEN FLOW Gas 10 mcfpd Oil 2 bpd NGL _____ bpd Water 5 bpd
GAS MEASURED BY ☒ Estimated ☐ Orifice ☐ Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
SAND/SHALE	0	1510'	0		
UPPER SALT SAND	1510'	1594'			
SHALE	1594'	1640'			
LOWER SALT SANDS	1640'	1770'			
SAND/SHALE	1770'	1794'			
SAND/SHALE	1794'	1850'			
LITTLE LIME	1850'	1870'			
BIG LIME	1870'	1944'			
SQUAW	1944'	1990'			
SAND/SHALE	1990'	2130'			
WEIR	2130'	2196'			
SHALE	2196'	2390'			
BEREA	2390'	2448'			
SAND/SHALE	2448'	2544'			

Please insert additional pages as applicable.

Drilling Contractor R & R Well Service

Address Ambler Ridge City Walton State WV Zip 25286

Logging Company Nabors Completion & Production

Address 82 Elkins Road City Buckhannon State WV Zip 26201

Cementing Company Universal Well Services

Address 5 Hall Run Road City Buckhannon State WV Zip 26201

Stimulating Company Producers Service Corporation

Address 109 South Graham Street City Zanesville State OH Zip 43701

Please insert additional pages as applicable.

Completed by Danielle N. Boggs

Telephone 304-344-9291

Signature Danielle N. Boggs Title Operations Manager

Date 2/12/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information

Attach copy of FRACFOCUS Registry